Welcome
Architecting-the-Enterprise

Tools for TOGAF
the Last piece of the Jigsaw, not the First

David Harrison
David Harrison Enterprises
davidharrisonenterprises@harrison-family.co.uk
Enterprise Architecture

- The Enterprise Architecture is:
  - The all embracing architecture for the business or organization

- The Enterprise Architecture:
  - crosses multiple systems & multiple functional groups within the enterprise
  - is the design by which the organization achieves its business goals and delivers its business objectives

- The Technical IT Architecture is a major enabling component of an Enterprise Architecture
An Enterprise Architecture is Not Optional

Every enterprise already has an IT Architecture

Some are designed

and some just happen

But it’s there and it affects the efficiency of the enterprise
What is an Architecture?

An Architecture is the fundamental organization of something, embodied in:
- its **components**
- their **relationships** to each other and the environment
- and the **principles** governing its design and evolution

Adapted from ANSI/IEEE Standard 1471-2000
Levels of Architecture in TOGAF

Enterprise Architecture

Business Architecture

How the business is organised to meet its objectives

Information Systems Architecture

How information systems support the objectives of the business

IT Architecture

Technology Architecture

How the technology fits together

Baseline “As Is”

Target “To Be”
Standards and Principles for EA (and Tool Support)

- Traceability
  - business objectives ➔ models ➔ architecture ➔ solution
- Re-use of architecture artefacts
  - across architecture domains
  - across frameworks
  - across the “Enterprise Continuum”
- Full integration of graphical and textual artefacts
- Enable multiple stakeholder views
- Support for corporate standards
- Support for corporate naming conventions and business rules
- Enable a common vocabulary for all stakeholders
- Provide consistency of:
  - meaning ➔ core taxonomy
  - definition content
  - diagram styles
  - presentation
In the initial phases, standard office tools may suffice.

As we proceed around the ADM cycle, the amount of information becomes unmanageable.
Business Process Model

Accommodation Decomposition Diagram for BPM-UML Example

- Customer Requests Accommodation
- Make Reservation
- Confirm Reservation
- Check In Guest
- Check Out Guest
- Invoice Raised for Accommodation
- Bill for Accommodation
- Handle Enquiry
- Provide Accommodation
- Handle Cancellation
- Payment Received
- Invoice Raised
- Payment Received for Accommodation
- accommodation charged to account
- accommodation unavailable
- Customer Advised of Unavailability

- Cancellation requested
- Cancellation request received
- Invoice Raised for Accommodation
- Payment Received for Accommodation
- customer advised of availability
- accommodation unavailable
- customer requests accommodation
- make reservation
- accommodation available
- confirmation reservation
- customer advised of availability
- accommodation charged to account
- payment received
- invoice raised
- bill for accommodation
- handle enquiry
- provide accommodation
- handle cancellation
- Accommodation

Business Process Model (BPMN)

1. Item Available for Sale
   - Register Item for Auction
     - Bid for Item
       - End of Auction
         - Item Sold?
           - yes
             - Complete Sale
               - Bid Item
                 - Bidder
                 - Seller
                 - Payment
               - Collect Commissions
                 - Successful Auction
             - no
               - Re-Submit Item for Auction?
                 - yes
                   - Bid Item
                 - no
                   - Item not Sold
Data Model
Application Model
Business Architecture

Auction Building Block

- Manage Bid BB
- Check Credit BB
- Make Payments BB
- Handle Errors BB
- Compensation BB
Data Architecture

Auction (Data) Building Block

- Payments (Data)
- Bidding (Data)
- Credentials (Data)
- Contacts (Data)
Applications Architecture

Auction (Application) Building Block

- Payments and Invoicing
- Credit Management
- Web Server
- Smart Sell
- eMail
- Client Care
Enterprise Architecture – the Model View

Enterprise Architecture
- principles + standards
- Common Vocabulary

CUSTOMER

Order Received

Check Details

Confirm Order

Order Confirmed

ORDER

PRODUCT

The Boss

The Middle

The Workers

A

CRM

A

Payments

D

Customer Database
Enterprise Architecture – the Building Block View

Auction Building Block
- Manage Bid BB
- Check Credit BB
- Make Payments BB
- Handle Errors BB
- Compensation BB

Auction (Data) Building Block
- Payments (Data)
- Bidding (Data)
- Credentials (Data)
- Contacts (Data)

Auction (Application) Building Block
- Payments and Invoicing
- Credit Management
- Web Server
- Smart Sell
- eMail
- Client Care
What does a framework do

- Framework is a **tool for the architect**
- Frameworks are the **public library (ISBN)**
- Architecture framework provides:
  - Integration
  - Organisation
  - Classification
  - Check List
    - Is the architecture complete
- Framework graphic provides a **window on the underlying repository**
- “Static” and “dynamic” frameworks
  - Content-focused frameworks (Zachman)
  - Process-focused frameworks (TOGAF)
Tool Support for TOGAF

- What a tool won’t do – why it’s the last piece of the jigsaw
- Why tool support
- What TOGAF says about tool support
- Tool certification for TOGAF
- Tool Interoperability
In the initial phases, standard office tools may suffice.

As we proceed around the ADM cycle, the amount of information becomes unmanageable.
The Last Piece of the Jigsaw

What a tool won’t do:
- Build your architecture for you
- Tell you how to do it
- Determine your standards and principles
- Tell you which models to create
- Tell you how they are related
- Capture information for you
- Communicate with your stakeholders
- Develop your migration plan

In other words …
- A tool is just a tool
- Your choice of tool comes after you know
  - what you want it for
  - How you will use it to met your EA needs
Your tool - the Final Building Block

- Your Business Environment
- Your Legacy (Enterprise Continuum)
- Your Standards and Principles
- Your Chosen EA Framework
- Your (TOGAF) EA Project

Your EA Tool
**Why Tool Support**

**Repository-based tool enables us to:**
- **Store and maintain** all architecture artefacts in a common, shared repository:
  - Diagrams
  - Definitions
  - Relationships
- **Re-use and share** architecture artefacts
  - Define once, use in many models
- Create and present **multiple stakeholder views** of the same information
- Understand and manage the **impact of architecture change**
- **Trace the link** from (eg) business objectives ➔ models ➔ architecture ➔ solution
- Establish a **common vocabulary** for all stakeholders
- Support corporate **standards**, corporate **naming conventions**, business rules
- Provide **consistency** of:
  - meaning ➔ core taxonomy
  - definition content
  - diagram styles
  - presentation
What TOGAF ADM says about Tool Support

Specific references to tools

- Preliminary Phase
  - define a set of criteria for evaluating architecture tools repositories and repository management processes to be used to capture, publish, and maintain architecture artefacts

- Phase B
  - Step 2: Create Reference Models, Viewpoints and Tools

- Phase C
  - Step 2: Create Reference Models, Viewpoints and Tools

Implied references to tools

- Traceability and rationale for decisions
- Impact analysis, including:
  - Architecture vs requirements
  - Across architectures
- Multiple stakeholder views
In the initial phases, standard office tools may suffice.

As we proceed around the ADM cycle, the amount of information becomes unmanageable.
Tool Certification for TOGAF

- Tool certification managed by the Open Group
- **Three tools** currently certified for TOGAF
  - System Architect
  - METIS
  - ProVision
- Certification criteria defined by
  - **Product Standard**
  - Defines high-level mandatory criteria
  - **Conformance Statement Questionnaire (CSQ)**
    - Mandatory and optional criteria
    - More specific and detailed than the Product Standard
    - Equivalent to ITT or RFI
- CSQ responses for each tool published on TOGAF web site
  - Visible to all
  - Aid to tool selection
- Use same (CSQ) criteria to evaluate other (non-certified) tools
Tool Criteria in the CSQ

**General criteria**
- How well does it support architecture design
- Does it support multiple stakeholder views
- Is it independent of methodology and framework
- How good is the user interface
- Can the tool be customised
- Can the tool communicate with other tools and applications
- How does the tool enable production of required documentation
- What computer environment(s) does the tool run on
- How good is the support and maintenance from vendor
Tool Criteria in the CSQ

TOGAF specific criteria

- Does it guide you through the ADM phases
- Does it support the creation of the core TOGAF products
- Can it store the definitive source of graphical and textual artefacts
- Can you define required relationships between architecture artefacts
- Does it support re-use of architecture artefacts:
  - From within your enterprise
  - From the Enterprise Continuum
  - From reference models (TRM, III-RM)
- Does it enable extract and publication of TOGAF documentation
  - Electronic and paper media
  - The 4 Architectures
  - Business Scenarios, Views and models
- Does it support standard modelling methods and diagram styles
- Does it have a common, shared repository
- Does it support versioning of models and architectures
- Does it support role-based access
Tool Interoperability

- Information interchange between toolsets is problematic
  - Lack of agreed standards
  - Technical constraints
  - Commercial constraints

- Need exists for a standard Architecture Description Language (ADL)

- ADL would enable import and export of architecture constructs between models and among architecture tools

- Architectural information could be exchanged with:
  - Requirements tools
  - Modeling and simulation tools
  - Performance evaluation tools
  - Configuration management tools

- Enterprises would benefit from an ADL being adopted in the tools they use to encode an architecture
Tool Interoperability – the ideal

- Integrators
- Enterprise Architects
- IT Procurement
- Systems Designers
- Developers
- Process / Requirements Engineers
- Performance analysts

• Open tools for defining and interchanging architectures
• Architecture building blocks defined using open tools

• IT products conformant to building block definitions
• IT Solutions vendors
• Architecture Tools vendors

THE Open GROUP
In the initial phases, standard office tools may suffice.

As we proceed around the ADM cycle, the amount of information becomes unmanageable.
Examples of Tool support for TOGAF

TOGAF Framework front-end and browser
Examples of SA support for TOGAF

Standard modelling methods (BPMN)

- Item Available for Sale
- Register Item for Auction
- Bid Item
- Bid for Item
- Bidder
- Complete Sale
- Seller
- Payment
- Collect Commissions
- Item Sold?
- Re-Submit Item for Auction?
- End of Auction
- Close Auction
- Pay Commission
- Successful Auction

- Item not Sold
- Create Item
- Yes
- No
- Item not Sold
- Yes
Examples of SA support for TOGAF

Additional diagram types for TOGAF (Business Architecture)

**Business Architecture for Auctions**

### Auction Building Block

- Manage Bid BB
- Check Credit BB
- Make Payments BB
- Handle Errors BB
- Compensation BB
Examples of SA support for TOGAF

Additional definition types for TOGAF (Business Architecture)
Examples of SA support for TOGAF

Matrices for (requirement vs ABB)

| Requirement  | Architecture Building Block | Auction (Application) Building Block | Auction Building Block | Auction (Goal) Building Block | Data Access | Client Case | Completion EB | Contact Management | Credit Management | Creditors (Data) | B2B Integration | B2C Integration | Payment and Settling | Smart Sell | Web Sales | E-mail |
|--------------|-----------------------------|-------------------------------------|------------------------|------------------------------|-------------|-------------|---------------|------------------|----------------|------------------|----------------|----------------|----------------|---------------------|-----------|----------|--------|
| Ease of use  | ×                           | X                                   |                         |                              |             |             |               |                  |                |                  |                |                |                |                     |           |          |        |
| Security     | ×                           | ×                                   | ×                       |                              |             |             |               |                  |                |                  |                |                |                |                     |           |          |        |
| Speed of response | ×                       | ×                                   | ×                       |                              |             |             |               |                  |                |                  |                |                |                |                     |           |          |        |
Examples of SA support for TOGAF

TOGAF Browser TAB
Examples of SA support for TOGAF

TOGAF Word Reports (Business Architecture)
Summary

- EA supports an operating business in achieving its goals
- EA an asset to the organization
- EA a key enabler for achieving alignment between business and IT

An Architecture Framework is a tool for the architect
- Framework provides integration, organisation, classification

Can’t do it without a repository-based tool
- The tool won’t do your architecture for you
- The tool decision comes last …

… but you need to make it before you start creating your architectures
Architecting-the-Enterprise

Tools for TOGAF
the Last piece of the Jigsaw, not the First

David Harrison
David Harrison Enterprises